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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

NGUYEN, PHILLIP H

ART UNIT

PAPER NUMBER

2191

NOTIFICATION DATE

DELIVERY MODE

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ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/726,075	Applicant(s) TAI ET AL.	
	Examiner Phillip H. Nguyen	Art Unit 2191	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 March 0208.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 and 8-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 8-28 is/are rejected.
- 7) ☒ Claim(s) 10 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This action is in response to the amendment filed 3/26/2008.
2. Per applicant's request, claims 1, 2, 16, and 22 have been amended; claim 7 has been cancelled.
3. Claims 1-6 and 8-28 remain pending and have been considered below.
4. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 3/26/2008 has been entered.

Response to Arguments

5. Applicant's arguments with respect to claims 1-6 and 8-28 have been considered but are moot in view of the new ground(s) of rejection.

Allowable Subject Matter

6. Claims 10 and 27 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1-3, 5, 6, 11-16, 18-22, 24, 25, and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Belknap (USPN 6,996,708), in view of Aikawa et al. (USPN 6,898,751).

As per claims 1, 16, and 22:

Belknap teaches:

connecting to a host (see at least col. 3:32-34 “*a scanner 102, connected to a terminal 104. The scanner 102 is connected to a USB port 106 in the terminal 104, using a USB connection cable 108*”); and

in response to one of a device power up and a device reset (see at least col. 4:35-38 “*the control module 122 is preferably adapted so that on startup it senses the configuration of the terminal being used, as between at least two possible configurations of terminals*”):

initiating downloading the device program from the non-volatile data source of the device to the volatile memory of the device for a predetermined time period based on the request signal (see at least col. 4:40-44 “*Initialization is performed by loading firmware from the EEPROM*”);

128 into the RAM 129, in a location in RAM that will cause the initialization firmware to be detected and executed by the microcontroller 127 upon power up or reset"); and

if the device program is completely downloaded, responding to the subsequent request signal by executing the device program (see at least col. 4:44 "*executed by the microcontroller 127 upon power up or reset*").

Belknap does not explicitly teach:

waiting for a first request signal from the host;

responding to the first request signal with a first negative acknowledgement (NAK);

in response to a subsequent signal from the host,

if the device program is not completely download, sending a subsequent NAK and continuing to download the device program from the non-volatile data source of the device to the volatile memory of the device.

However, Aikawa teaches:

waiting for a first request signal from the host (see at least col. 2:53-55

"...the host controller bulk data request signals (IN tokens) to the USB device(s)");

responding to the first signal with a first negative acknowledgement (NAK) (see at least col. 1:20-23 "*A NAK signal/packet is sent to indicate that there is an error in the received data or the receiving unit is busy and cannot accept data until later time or a transmitting device cannot transmit data*"); and

in response to a subsequent signal from the host,
if the device program is not completely download, sending a
subsequent NAK and continuing to download the device program from the
non-volatile data source of the device to the volatile memory of the device
(see at least col. 2:59 “...*device which keeps sending a NAK signals...*”).

Therefore, it would have been obvious to one having an ordinary skill in the art at the time the invention was made to modify Belknap’s approach to allow the terminal to request data to be transferred and responding to the request by NAK signals to delay the response request. One would have motivated to modify in order to allow all the appropriate firmware from the EEPROM to transfer to the RAM during the microcontroller is power up for which the scanner may be used.

As per claim 2:

Belknap further teaches:

the non-volatile data source comprising non-volatile memory (see at least col. 4:6 “*EEPROM 128*”).

As per claim 3:

Belknap further teaches:

the non-volatile memory is at least one of an Electronic Erasable Programmable Read Only Memory (EEPROM) and a flash memory (see at least col. 4:6 “*EEPROM 128*”).

As per claim 5:

Belknap in combination with Aikawa teaches all the limitations of the base claim and Aikawa further teaches:

reading descriptor information from the non-volatile memory prior connecting to the host (see at least col. 2:61-63 "*Polling occurs when the ED is enabled, a TD is active or if the TD is loaded and activated*").

As per claim 6:

Belknap in combination with Aikawa teaches all the limitations of the base claim and Belknap further teaches:

setting a pointer for tracking device program data downloaded from the data source (see at least col. 1:57-60 "*Proper initialization requires that the correct routines be present in the EEPROM for other semipermanent memory and that they be selected, loaded into the correct location in RAM and executed properly*").

As per claim 11:

Belknap in combination with Aikawa teaches all the limitations of the base claim and Belknap further teaches:

the host is a USB host and the device is a USB device (see at least col. 3:32-34 "*a scanner 102, connected to a terminal 104. The scanner 102 is*

connected to a USB port 106 in the terminal 104, using a USB connection cable 108").

As per claims 12 and 28:

Belknap in combination with Aikawa teaches all the limitations of the base claim and Aikawa further teaches:

the predetermined time period is monitored by a timer (see at least col. 2:7
- It is inherent in Aikawa in order to calculated the data transfer rate).

As per claims 13 and 14:

Belknap in combination with Aikawa teaches all the limitations of the base claim and Aikawa further teaches:

determining and downloading a number of device program data blocks to be downloaded based on the predetermined time period (see at least col. 2:6-8
"Isochronous transfers are periodic data transfers at a constant rate (e.g. 1 ms). Data transfer is correlated in time between a sender and receiver")).

As per claim 15:

Belknap in combination with Aikawa teaches all the limitations of the base claim and Aikawa further teaches:

setting a loop counter based on the number of data blocks to be downloaded (see at least col. 5:51-53 *"a historical range of values (or a single*

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value) is built that records the average number of times a device NAKs before successfully transferring or receiving data”).

As per claim 18:

Belknap in combination with Aikawa teaches all the limitations of the base claim and Aikawa further teaches:

sending negative acknowledgement (NAK) to the host to intentionally postpone the transmission of the response to the request signal (see at least col. 1:20-23 "*A NAK signal/packet is sent to indicate that there is an error in the received data or the receiving unit is busy and cannot accept data until later time or a transmitting device cannot transmit data*").

As per claim 19:

Belknap in combination with Aikawa teaches all the limitations of the base claim and Aikawa further teaches:

determining the signal request type and setting the predetermined time period accordingly (see at least col. 2:1-3 – *It is inherent in order to identify which type of data transfer since there are four types of data transfers between a host controller and peripheral unit*).

As per claim 20:

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Belknap in combination with Aikawa teaches all the limitations of the base claim and Aikawa further teaches:

determining a number of data blocks to be downloaded based on the predetermined time period (see at least col. 2:6-8 "*Isochronous transfers are periodic data transfers at a constant rate (e.g. 1ms)...*").

As per claim 21:

Belknap in combination with Aikawa teaches all the limitations of the base claim and Aikawa further teaches:

the number of data blocks to be downloaded being further based on at least one of a download data rate and a block size (see at least col. 2:6-8 "*Isochronous transfers are periodic data transfers at a constant rate (e.g. 1ms)...*").

As per claim 24:

Belknap in combination with Aikawa teaches all the limitations of the base claim and Aikawa further teaches:

the MCU downloads data blocks associated with the firmware for a predetermined time period based on the request signal type from the host controller (see at least col. 2:1-3 – *It is inherent in order to identify which type of data transfer since there are four types of data transfers between a host controller and peripheral unit*).

As per claim 25:

Belknap in combination with Aikawa teaches all the limitations of the base claim and Aikawa further teaches:

the MCU further determines the number of data blocks to be downloaded for the predetermined time period based on download data rate and a block size (see at least col. 2:6-8 "*Isochronous transfers are periodic data transfers at a constant rate (e.g. 1ms)...*").

9. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Belknap (USPN 6,996,708), in view of Aikawa et al. (USPN 6,898,751), and further in view of Kitagawa et al. (USPN 6,357,021).

As per claim 4:

Belknap in combination with Aikawa teaches all the limitations of the base claim but neither teaches:

reading a signature from the non-volatile memory and validating the signature prior to connecting to the host.

However, Kitagawa teaches:

reading a signature from the non-volatile memory and validating the signature prior to connecting to the host (See at least col. 4:25-36 "...initializes

hardware and initializes variables...determines whether the firmware stored in the updateable part 220 is valid").

Therefore, it would have been obvious to one having an ordinary skill in the art at the time the invention was made to modify the above invention taught by Belknap in combination with Aikawa to include the teaching of Kitagawa. One would have been motivated to modify in order to validate the firmware prior transferred.

10. Claims 8, 9, 17, 23 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Belknap (USPN 6,996,708), in view of Aikawa et al. (USPN 6,898,751), and further in view of Falik et al (USPN 6,145,045).

As per claims 8, 17, and 23:

Belknap in combination with Aikawa teaches all the limitations of the base claim but neither teaches:

updating a download point each time the predetermine time period is completed.

However, Falik teaches:

updating a download point each time the predetermine time period is completed (see at least col. 8:50 "...*pointer to be incremented*").

Therefore, it would have been obvious to one having an ordinary skill in the art at the time the invention was made to modify the above invention taught by Belknap in

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combination with Aikawa to include the teaching of Falik. One would have been motivated to modify in order to track firmware downloaded.

As per claims 9 and 26:

Belknap in combination with Aikawa and further in combination with Falik teaches all the limitations of the base claim and Falik further teaches:

wherein the predetermined time period is a first time period for a data request signal, and a second time period for a status request signal (*The predetermined time period is the time between data packet being requested to be transferred*).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phillip H. Nguyen whose telephone number is (571) 270-1070. The examiner can normally be reached on Monday - Thursday 10:00 AM - 3:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wei Y. Zhen can be reached on (571) 272-3708. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

PN

5/29/2008

/Wei Zhen/

Supervisory Patent Examiner, Art Unit 2191